

...after which the 6M band was opened to the public for a trial period of one year. On June 17, 1942 it was announced that the 6M band was to be opened to the public for a trial period of one year. The 6M band was to be opened to the public for a trial period of one year. The 6M band was to be opened to the public for a trial period of one year.

44 - 45 MHz	Amateur Radio
46 - 47 MHz	Amateur Radio
48 - 49 MHz	Amateur Radio
50 - 51 MHz	Amateur Radio
52 - 53 MHz	Amateur Radio

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A BRIEF HISTORY OF 6 METERS

"THE MAGIC BAND"

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COMPILED BY: Harry A. Schools KA3B
The International 6M Digest
The KA3B 6M Report

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A BRIEF HISTORY OF 6 METERS : " THE MAGIC BAND "

THE F.C.C. RESTRUCTURES THE VHF SPECTRUM

Immediately after World War II, the Federal Communications Commission began planning for a major restructuring of the VHF spectrum. On June 27, 1945 it was announced that assignments to the range of frequencies from 44 to 108 MHz would be forthcoming. Up until this announcement, the amateur 5 meter band (56-60 MHz) had the only allocation in this frequency range. According to the FCC announcement, a partial rundown on the new allocations were as follows:

44 - 50 MHz	Television Channel 1
50 - 54 MHz	Amateur
54 - 60 MHz	Television Channel 2
60 - 66 MHz	Television Channel 3
66 - 72 MHz	Television Channel 4

Prior to this FCC decision there was talk of placing amateurs in the 44-48 MHz slot which, although a possible alternative, was not the most popular choice. The AMERICAN RADIO RELAY LEAGUE (ARRL) had issued a brief requesting the spectrum 50-54 MHz. This brief appeared in the August 1945 QST on page 12. It was very well written and proved to be a major factor in the FCC's decision making process. I have included a few excerpts to illustrate this point:

"We have done much previous work, before the war, in the vicinity of 56 Mc, observing and studying the behavior of these waves. We regard that the job is incomplete and we hope that the frequencies on which we work after the war will be so nearly the same that the results will be strictly comparable, so that they may be added to the story of what has gone before to yield eventually a complete whole. We consider 50 Mc the lowest frequency to which we could move and still permit continuity.

The frequencies in the vicinity of 56-60 Mc have a particular interest to amateurs because they are located at what seems to be a unique transition spot in the spectrum. Sporadic-E transmission occurs with such frequency to maintain amateur interest at white heat, and such frequencies are near the top limit of where F2 transmission ever normally occurs. We have previously characterized the performance of this band to you as being erratic, unpredictable, unreliable and unexpected, a band where anything can and generally does happen; and we have explained to you that its very eccentricities give it a particular charm for us, though they make it bad for regular service. If the assignment were moved to 44-48 Mc, it would be a region where both sporadic-E and F2 transmission occur with such frequency that they would possess small novelty and much of the eager interest of amateur observers would disappear. The band would be neither fish nor fowl and would be regarded simply as an exceedingly unreliable long-distance band. Although not at issue here, we remark that a move of similar proportions upward in frequency would similarly reduce the band to substantially a line-of-sight band, where these transmission vagaries occur with insufficient frequency to reward even the persistence of an amateur. We mention this to underline our statement that the region 50-60 Mc seems to be the border-land possessing a unique attraction for us because of its unreliable properties."

S I X M E T E R S I S B O R N

The new 6 meter band (50-54 MHz) didn't become available until March 1, 1946. Although there were many operators giving the band a try in the Northeast and Great Lakes areas, other parts of the US had very few, if any, stations. The early pioneers utilized CW, AM and even NBFM. Antennas included rhombics, corner reflectors, and folded dipoles to name a few.

The first two-way QSO involving "skip" was reported to have taken place on April 23, 1946 at 10:43 PM EST when W1LSN of Exeter, NH worked W9DWU of Minneapolis, MN. This and many other contacts were made on that night via a combination of aurora and sporadic-E. The distance of this contact was 1,100 miles.

Although the distance record for the 56 MHz (5 meter band) was held by WLEYM and W6DNS for a 2,500 mile contact on July 22, 1938, G5BY in England began running a series of test transmissions on high gain antennas beamed at the US. Each Sunday through June and July of 1946, G5BY made automatic CW transmissions on 58.632 MHz beginning at 1300 GMT (7:00 AM EDT). While transmitting 10 minutes on the hour and half hour for 8 hours, he listened for 10 minutes following each transmission for replies from American amateurs on 50 MHz. G5BY's QTH was on a 400 foot cliff overlooking the sea. For transmitting to the US he utilized an 8 element array consisting of two 4 element W6QLZ arrays stacked one above the other and fed in phase. For receiving he used a rhombic, 240 feet on a leg. Prior to World War II, G5BY was the first European to span the Atlantic on 56 MHz when his signals were heard by W2HXD. That historic event took place on December 27, 1936.

The first 50 MHz transcontinental QSO, the second such in VHF history, was made on the evening of June 14, 1946 when W6OVK of Redwood City, CA raised W2BYM of Lakehurst, NJ on a CQ at 7:00 PM PST. This was a distance of 2,590 miles and a new 6 meter record. That same afternoon, W1LLL in Hartford, CT worked W6NAW in Los Angeles, CA for the second 6 meter transcontinental QSO.

By August of 1946, 6 meter operators were popping up in many areas of the country. However, it was reported by Edward P. Tilton W1HDQ in his "World Above 50 Mc" column which appeared in QST Magazine, that 18 states had no 6 meter activity. Those states included Maine, Vermont, South Carolina, Kentucky, Tennessee, Mississippi, Louisiana, Arkansas, North Dakota, Nebraska, Oklahoma, Colorado, New Mexico, Wyoming, Montana, Idaho, Utah, and Nevada. Because of the scarcity of certain states, portable operations were popular. Ed W1HDQ himself travelled to Hogback Mountain in Marlboro, Vermont to put that rare state on the air. Other portable operations included W8CIR/1 and W1LAS/1 from Penobscot Bay and Mount Cadillac, Maine. W8CIR/1 also ventured to Woonsocket Hill, RI, Mount Monadnock, NH, Hogback Mountain, VT and Mount Agamenticus, ME.

Six meter activity in other areas was growing as well. By September 1946, about 30 Canadians were on the band. In the Pacific, Australia and New Zealand had their share of "experimenter" also. Some of the early Australians on 6 meters included VK2WJ, VK2ABZ, VK2LS, VK2LZ and VK2NO.

Prospects for international work by means of F2 skip began to appear in September of 1946, and during a 27 day recurrence cycle in late October, American FM stations near 45 MHz were heard in England. Anticipating a peak in the F2 season to take place in late November, Dennis Heightman G6DH of Clacton on the Sea, Essex, England, suggested a series of daily schedules with W1HDQ on 28 MHz. These schedules started on November 13th and took place each morning at 8:15 AM EST. On several days signals were heard on both ends of the path on frequencies as high as 48 MHz. Test after test was made on 50.002.3 MHz with no results. On Sunday morning November 24th, signals in the 47-48 MHz range were heard on both sides of the Atlantic - many of them S-9 and higher. Arrangements were made whereby W1HDQ would transmit for 5 minute periods each 15 minutes, listening on 28 MHz for replies from G6DH. The first transmission was made at 11:15 AM in the form of a QST on voice to all 50 MHz stations, to the effect that an opening across the Atlantic was imminent, and urging all stations to get on and transmit. The QST was continued for 4 minutes, followed by a 1 minute call to G6DH. G6DH heard W1HDQ and the first trans-Atlantic VHF QSO was on. A VHF two-way was attempted (5 meters to 6 meters), but the MUF didn't quite go high enough to permit G5BY to make it on 58.632 MHz with W1BEQ in Connecticut. W1HDQ's signal faded out at 12:00 PM (43 minutes later) at G6DH and at 12:25 PM with G5BY, Hilton O'Heffernan. Although G5BY intercepted W1HDQ's signal first, it was G6DH who made the first contact. (January 1947 QST, page 50)

1 9 4 7 : ----- A Y E A R O F F I R S T S

With a combination of flourishing activity and the peak of Solar Cycle 18, the year 1947 proved to be a winner in almost every respect. South of the border, XELKE put Mexico on the air by operating on 50.024 MHz with 100 watts to an 829B feeding a 4 element beam at 90 feet. CE3CV in Chile was attempting to get permission for 6 meter operation and in Europe, PA0UN of Eindhoven, Holland was active by special permission with 100 watts and a 4 element beam. Later, PA0UM and PA0WJ followed suit. The big news was that the G's were given permission for 50-54 MHz operation for experimentation lasting until January 1, 1948. This special authorization was later extended to April 30, 1948 and was available to anyone paying the 10 Schillings tax. Maximum power was 25 watts input. By late 1947 there were large amounts of activity taking place in VK-ZL and in South America, with nearly 50 active stations in Argentina alone.

The first major event of 1947 took place on January 25th when Major W.O. Brewer (J9AAK) at Okinawa worked Captain Bob Mitchell (KH6DD) at Ewa, Oahu for a new distance record of 4,600 miles. The QSO began at 3:13 PM Hawaiian Time and lasted 27 minutes with signals as high as S-7. A second QSO took place at 4:33 PM with signals over S-9. At 4:48 PM, W7ACS/KH6 at Pearl Harbor took over, until 5:07 PM when signals faded out. The following equipment was used in setting the new world's record:

J9AAK	Okinawa	68 watts to an 829	/ 5 element closed-spaced array
KH6DD	Hawaii	500 watts to VT-127A's	/ Single-section "Twin 3" rotary

W4IUJ W I N S T H E M I L W A U K E E C U P

"The Milwaukee Radio Club Cup has been won at last!" This was the introductory sentence to an article in the section "World Above 50 Mc" written by Edward P. Tilton W1HDQ, VHF Editor for QST, as it appeared in the May 1947 issue.

The Milwaukee Cup was offered in 1936 to the first radio amateur who could make a two-way contact between two continents from a distance of 2,000 miles or more on frequencies higher than 50 megacycles. This seemed to many, at that time, as an over optimistic move to promote the international VHF effort. (Line of sight, or about 20 miles, was thought to be the best you could expect of VHF in 1936). The beautiful gold trophy - The Milwaukee Cup - had waited at ARRL Headquarters in Hartford, Connecticut for over 10 years for a claimant.

Glen Harman W4IUJ was a VHF enthusiast at heart. Ed Tilton W1HDQ had an article in QST about building a 6 meter beam, so Glen gathered the necessary materials and put it together. On March 23, 1947 he had the new beam finished. Glen hoisted it up the mast and with the aid of a rope and an "arm strong rotator", headed the beam south. With the eagerness of a man with a new car, he connected the beam to the rig which consisted of a DM-36 Converter into a broadcast receiver and a pair of 35TG's in push-pull at 100 watts AM. The beam was on Miami, Florida, the closest place he knew of any activity on 50 MHz and called a CQ. Tuning the band for a reply, he heard a feeble signal calling. Glen was somewhat disappointed because he knew the fellows in Miami had always come in with better signals. But when W4IUJ heard the call letters OA4AE, he couldn't believe his ears. Contact was made at 2:50 PM EST and lasted for 20 minutes.

Although a great surprise for W4IUJ, this historic QSO was somewhat of a heart-breaker for Grid W4GJO in Orlando, Florida. Grid had been working for months to get OA4AE on 6 meters and had a schedule arranged for that same afternoon to see if they could make contact. This schedule was completely unknown to W4IUJ as was the trophy that was soon to be his. After proper confirmation of the contact with the ARRL and the Milwaukee Radio Club, the trophy was awarded to W4IUJ. The West Palm Beach Radio Club planned an amateur radio convention and a representative of the Milwaukee Radio Club was to make the presentation. The "All Florida Hamfest" was held on June 15, 1947 at Lake Worth and the presentation of the trophy was the highlight of the program. Major Frank R. Mariorana made the official presentation and announced that OA4AE would receive a similar trophy.

A great deal of credit had to be given to Carol Busby OA4AE in getting on 6 meters. Carol had to wind coils for a converter, get it going, fix the rig on 6, grind a crystal, and build and erect a 6 meter antenna. OA4AE ran 42 watts to an 807 doubler with a 3 element horizontal beam. Carol, better known as "Buz", now resides in Texas under the callsign W5AGG.

T H E ----- R E C O R D S ----- C O N T I N U E

Although the South Africans were not allowed 6 meter operation, ZS1T, ZS1P, ZS1AX and ZS1DJ were actively listening on 50 MHz for hopes of possible cross-band contacts. On March 26, 1947 the automatic transmissions of PA0UN were heard S-9+ by ZS1P and others. On March 29th, ZS1P worked PA0UN cross-band with S-9 signals both ways during an hour long QSO. Seven months after the famed KH6DD-J9AAK QSO, a new distance record was set once again. This time, W7ACS/KH6 worked VK5KL in Perth, Australia on August 25th at a distance of 5,350 miles, breaking the old mark by 750 miles.

Set up World's Record for 56 mc., August, 1933, Telephony transmitted 200 miles.

First British Station to work Japan, Alaska and British Columbia.

Certificate Winner, with 99.984 % accuracy, in the 1931 Frequency Measuring Tests.

First British Station to work telephony with California, May 1931. Station blimed & featured in the Gaumont "Sound Mirror," 1932.

Leading British Station in the 1932 International Goodwill Tests.

First British Station to work two-way telephony with the U.S.A. on the 26 mc band, Nov. 1935. Held 56 mc two-way Inter-G Record from Oct. 1935 to June 1939.

Recorded 56 (now 58) mc Inter-G Record - after war close-down - with 224 miles. Afterwards established fresh consecutive records of 233, 245 and 248 miles.

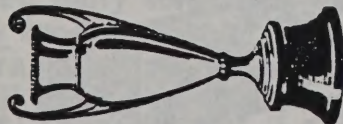
First British Station on 58 mc to work post-war International DX and the first ever to work N. Africa, Switzerland and Czechoslovakia.

First British Station to work two-way telephony on 58 mc, with Malta and Gibraltar.

First European station to receive 50 mc. signals from N. America, S. Africa & Suez; also first to work on a band, 26/50 mc., with Canada, South Africa and Suez.

WINNER OF "QST" STATION DESCRIPTION CUP FOR WORLD'S BEST AMATEUR RADIO STATION, 1929.

Winner Great Britain in Seven Consecutive A.R.R.L. International DX Contests.



First and only British Station to work S. Africa two-way on 50 mc., contacts being on Nov. 6 and 13, 1947 with ZSIP. March 27, 1948 with ZSIT and Nov. 1, 1948 with ZSIP. The 6,000 miles (approx) distance in the British DX record for the band.

First British Station on 50 mc to work VE 2, 3, W 3, 5, 9 and D districts and the leading European station in States worked. Between Nov. 6 and Dec. 1, 1947, 175 contacts were made with 93 different stations in N. America, S. Africa, Egypt and Suez.

Set up successive British records of 224, 236, and 267 miles on 145 mc within 17 days of band being opened for use in this Country.

Established European record on 145 mc of 379 miles with PA9ZQ, Nov. 12, 1948.

Winner of the "S.W.M." 58 and 145 mc Contest, November, 1948, with top score on both bands.

To RADIO	Your	mc signals
worked here at	GMT	19
RST	Antenna	G5BY

G5BY

5BY

Member WAC Club since 1927.

Member Old Timers Club.

Member AI Operator Club on Key and Telephony.

Member Pre-War DX Century Club.

First European Station to span the Atlantic on 56 mc., Dec. 27, 1936.

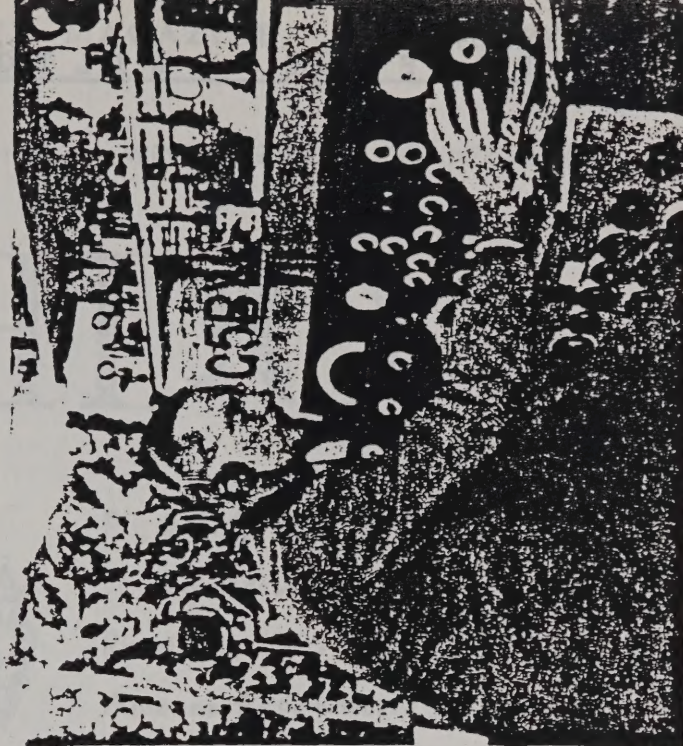
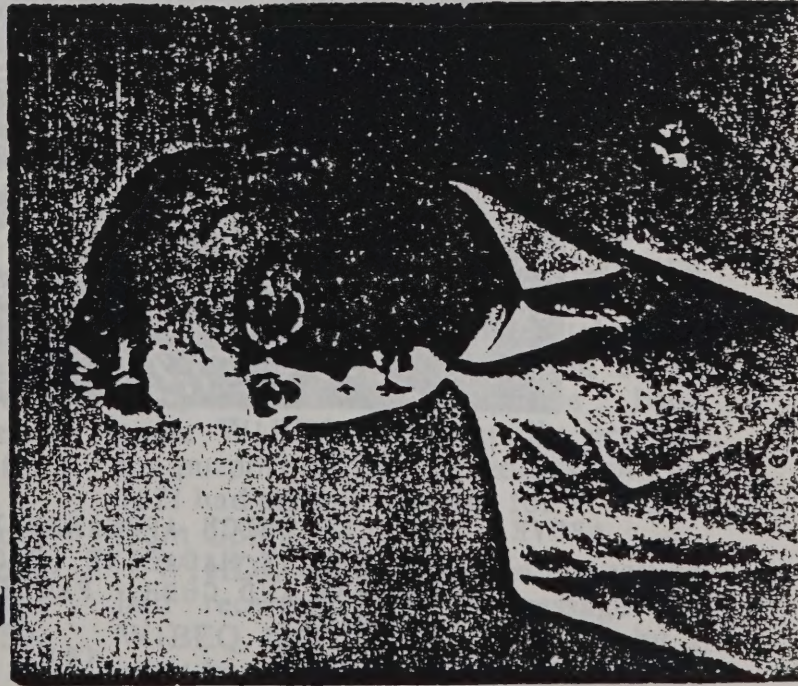
HILTON L. O'HEFFERN
THURLESTONE.
S. DEVON. EN

First British Station to obtain WAC-on-Telephony Certificate, April, 1930.

HILTON O'HEFFERN G 5 B Y

ABOVE: Operating achievements of G5BY as outlined on his QSL card.

LEFT/RIGHT: Two photographs of Hilton O'Heffernan G5BY (1947).



Trans-Atlantic Story

Last month's news flash summarised very briefly the reception of W1HDQ's 50 mc signals by G5BY and G6DH. We are glad to be able to show here-with new photographs of both stations and a glimpse of W1HDQ's QSL card to G5BY.

It is clear on the evidence of W1HDQ himself that G5BY was the first actually to identify the signal, G6DH following a minute or two later with the first cross-band 28/50 mc QSO. Truth to tell and as both will agree, there was very little in it. G5BY had worked hard for the contact for many months, having put out regularly scheduled 58 mc signals every week-

The 5- and 10-metre transmitter and VHF receiver at G6DH, Clacton, Essex. The receiver is a home-built acorn superhet designed by Denis Heightman himself, with a regenerative 954 mixer stage. It was on this equipment that G6DH made the first 50/28 mc cross-band Trans-Atlantic contact. W1HDQ's card says "Commemorating the first QSO across the Atlantic on 50 mc." November 24, 1946.



ABOVE: ARTICLE WHICH APPEARED IN THE JANUARY 1947 EDITION OF SHORT WAVE MAGAZINE (PAGE 659) CONCERNING THE VHF WORK OF G5BY AND G6DH. PAGES 660 AND 661 APPEAR ON THE NEXT TWO PAGES.

117 BUENA VISTA ROAD

(Selden Hill)

WEST HARTFORD, CONNECTICUT

V
H
F

W1HDQ

U
H
F

Radio G5BYYour 28.2 Mc PhoneWkd—Hrd 59+20.08Date 11/24/46Time 11:45 a.m. ESTRig 6AG7/6V6/829/35T6's50,002.3 kc. !Receiver N.H.U.Antenna 4-element rotaryOSL 150!

73 E. P. TILTON

You were the first to hear a 50-mc. sig. across the Atlantic!

W1HDQ's card, confirming reception of his 50 mc signals by G5BY, as reported briefly last month. A note on the bottom edge of the card reads "You were the first to hear a 50 mc signals across the Atlantic!"

end since the beginning of June and spending long hours searching the American 50-54 mc band, with receiving equipment specially installed for the purpose.

G6DH studied the problem from the angle of strict probabilities in the light of the behaviour of the reflecting layers and the MUF. Having forecast the probable period for the opening of the path with considerable accuracy, he started daily schedules with W1HDQ early in November. They had made several attempts to contact when the MUF moved to 45 mc—evidenced by the big signals from the American 44 mc FM stations—but November 24 last was the first occasion it went over 50 mc. Fortunately, G6DH was there to take advantage of it—had the weather been fine, he would have been away from home. What a turn-up for the book!

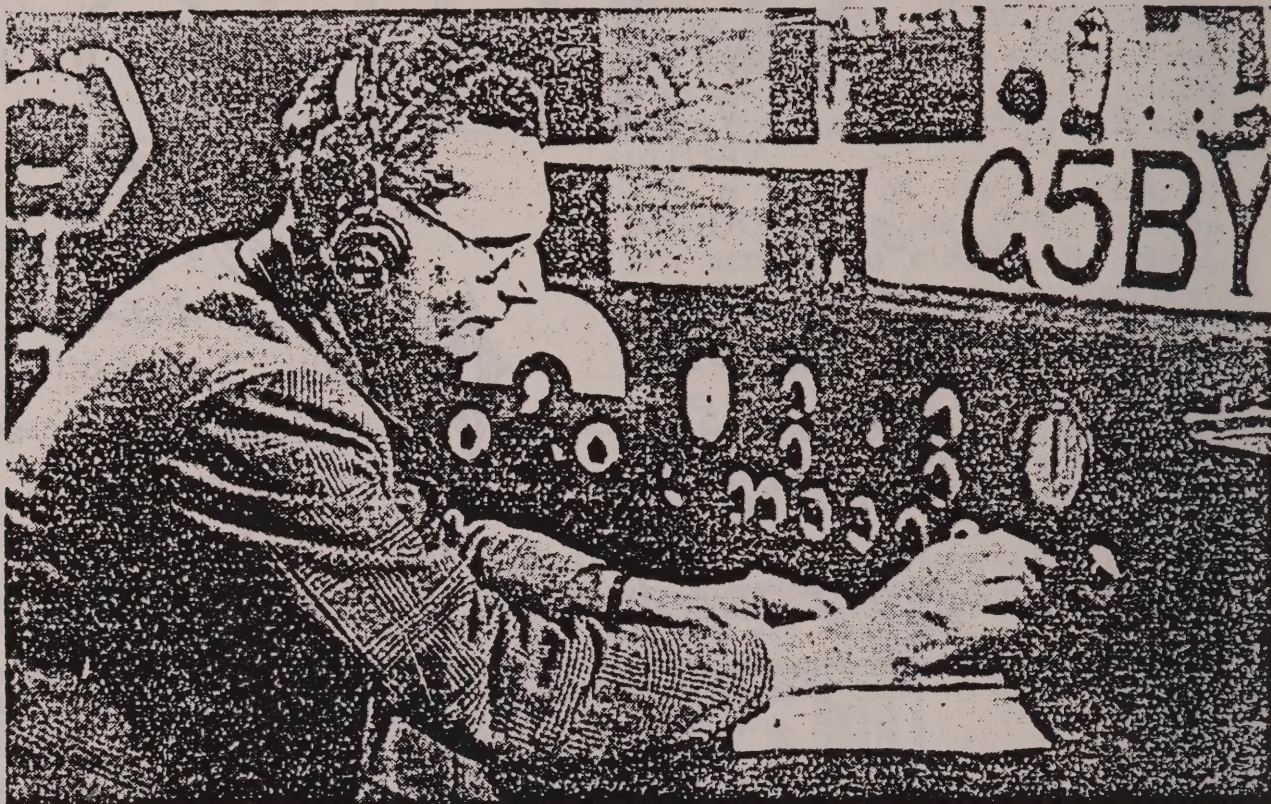
By 1600, after several 28 mc checks with W1HDQ, things were obviously working up to a climax, with American 47 mc stations pounding in at S9. G6DH asked W1HDQ to call him on 50 mc at 15-minute intervals, and by

1621 they had made contact across "six-ten"; by 1630, W1HDQ's 'phone was a comfortable Q5, S8/9.

The Devon End

At G5BY, the details were different. At 1517 he started to hear a loud American, WEDI, as high as 52.9 mc—so strong that it was mistaken for a beat from the 28 mc VFO. This signal was identified, but had disappeared by 1600, when it was time for G5BY to push out the ten-minute auto-transmission on 58 mc. After this, 50-54 mc was searched with extreme care, and at 1617 W1HDQ was heard clear and steady at S6, announcing times and MUF data. G5BY immediately fired up the 28 mc transmitter and called "CQ Conn Rush" on 'phone; back came W1BEQ, who rapidly grasped the purport of the proceedings, and by 1621 had taken a message for W1HDQ from G5BY.

W1HDQ came on at 1645 to say he had received G5BY's message via W1BEQ, and this was followed by a cross-band 28/50 mc contact in the course of which W1HDQ confirmed



Hilton O'Heffernan, G5BY, of Thurststone, S. Devon. The receiving equipment, entirely home-built like all the rest of the gear at G5BY, covers 1.7 to 60 mc. Superhet converters are used with a common IF/AF unit. The 50-54 mc converter is on the left.

G5BY's reception details at 1617. Best reception of W1HDQ at G5BY was 20 dB over S9 ; there was no quick fade as on 28 mc, only a slow periodic rise and fall being noticeable with the speech Q5 all the time. The receiver for 50-54 mc is a three-stage 954 RF, 954 mixer, 955 oscillator, working as a converter with IF on 1.6 mc. The aerial is a four-element close-spaced beam, cut for 51 mc. It had been somewhat damaged in the gale, but even then produced a much better signal on W1HDQ than the 300-ft. rhombic, which also covers the States.

MARCH, 1948

G5BY, Hilton O'Heffernan, obtained his call in 1925 at the age of 18, and since 1930 his main interest has laid in v-h-f work. For a number of years prior to WW2, Hilton was with Philips Lamps, as chief engineer in the public address dept., and during the war was with the British Broadcasting Corporation, in the transmitter section of the engineering division. Unmarried, he was living with his parents at Croydon until the outbreak of war in 1939. After the death of his parents he decided to give up the home in Croydon and start up afresh in S. Devon, where he had been stationed during most of his service with the B.B.C. Other hobbies enjoyed by G5BY are lawn tennis, table tennis, contract bridge and owning and driving fast sport cars. Between 1925 and 1937 more trophies were won in league and inter-county table tennis tournaments than have ever been obtained in radio contests. Hilton's present car, purchased shortly before the war, has faithfully carried G5BY back and forth from the shack, and has been driven on occasions to 98 mph. Perhaps one of his greatest disappointments was his watching Wilmer Allison, W5VW, play many times in England with the U.S. Davis Cup Tennis Teams, never realizing that in a few years both were to become ardent v-h-f indulgers. Now with 18 acres available for antennas, G5BY is never happier than when at work on new beams, even cutting the timber and only calling on the local power man to help with the erection.

APRIL 1, 1948.

G5BY CALLING

Thurlestone Man's 6,000-Miles Contact

Within 24 hours of receiving permission to transmit on the six-metres waveband, Mr. H. L. O'Heffernan, G5BY, of Thurlestone, exchanged signals with Mr. Henry Rieder, ZS7P, of Capetown, South Africa, for the first two-way contact on six metres between this country and South Africa. This was followed a few days later by yet another two-way contact, which lasted over 15 minutes.

Mr. Rieder, who was born in Plymouth, spent his boyhood in Devon.

The 6,000-miles contact with South Africa remains the farthest distance so far accomplished by British experimenters using the six-metres wavelength.

OCTOBER 8, 1947.

S. AFRICA TALKS

Devon Radio Success On Six-Metres Band

Mr. H. L. O'Heffernan, who claims that from his experimental radio station on the cliff near Thurlestone he obtained the first European reception of six-metres signals from the United States last November, has had another outstanding success.

Just before three p.m. last Saturday he picked up the six-metres signals of the South African amateur radio station ZS1P. Amateur stations in this country are not licensed to transmit on that wavelength. Mr. O'Heffernan replied on ten metres and telephony communication was at once established and was maintained for half an hour.

This is the first time a South African station has ever communicated with Europe, using the six-metres band. ZS1P is owned and operated by Mr. Henry Rieder, of Capetown, whose boyhood was spent in Devon.

Mr. O'Heffernan, since starting up his experimental radio station at Thurlestone, has also obtained the first two-way contacts ever to be made over the five-metres band with North Africa, Switzerland, and Czechoslovakia.

UPPER LEFT: Excerpt from March 1948 CQ Magazine

ABOVE: Clipping from the Western Morning News (OCT 8, 1947)

LEFT: Clipping from the Western Morning News (APR 1, 1948)

U. S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS

WASHINGTON

ADDRESS REPLY TO
NATIONAL BUREAU OF STANDARDS

IN YOUR REPLY
REFER TO FILE

February 20, 1948

14.1/904

Mr. Hilton L. O'Hefferman, G5BY
Resthaven Hotel
Thurlestone, South Devon
Great Britain.

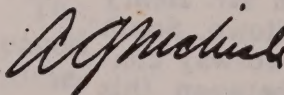
Dear Mr. O'Hefferman:

I have received a report from Mr. Oliver Ferrell, assistant editor CQ Magazine, on reception of 50 Mc transmissions across the North Atlantic. Since your observations figure prominently in the report, and reflect considerable time and effort expended on your part to make the observations as complete and accurate as possible, I wish to extend thanks on behalf of this laboratory for your contribution in helping to fill a very important need in radio propagation research.

As you know, our predictions of radio propagation conditions, issued monthly in the CRPL-D series, "Basic Radio Propagation Predictions," are based almost entirely on ionospheric observations made at vertical incidence at various stations on the earth, together with a theory connecting oblique-incidence with vertical-incidence propagation. It is essential, therefore, if the predictions are to have maximum usefulness, that they be verified as often as possible on as many frequencies as possible. Heretofore, reliable checks on frequencies above about 30 Mc have been extremely scarce. It was with great pleasure, therefore, that Mr. Ferrell's comprehensive report, including your observations, was received.

I sincerely hope this important work will be continued and that you will be able to participate as before. Users of radio communication are relying more and more heavily on predictions of radio propagation conditions. It, therefore, becomes more and more important to keep the predictions as accurate as possible through careful verification.

Very truly yours,



A. G. McNish, Chief,
Basic Ionospheric Research Section
Central Radio Propagation Laboratory

Oliver P. Ferrell



RADIO AMATEUR SCIENTIFIC OBSERVATIONS

In May of 1948 a cooperative 6 meter radio amateur observing program was formed. This program was the first concerted effort to study sporadic-E layer transmissions above 30 MHz. The Geophysical Research Division of Watson Laboratories under contract to the Air Materiel Command (USAF), were responsible for analyzing the observations and reports of radio amateurs. The formation of this observing program was due to the unrelenting work of CQ Magazines Assistant Editor, Oliver Perry Ferrell. This program began officially during the last week of June 1948 with introductory letters and report forms being sent to 155 known active 6 meter operators. Two hundred observers and 25 foreign associates formed the work group on 6 meters. Known as R.A.S.O., an acronym for RADIO AMATEUR SCIENTIFIC OBSERVATIONS, this program ran for a number of years and played an important role in the development of the 6 meter band.

The first newsletter of the 6 meter project was mailed out on July 5th, 1949. It incorporated notes on the W7QLZ 4 element beam, information on the operations of CO6WW (Cuba), and a list of all observers active of that date. Over 500 amateurs throughout the Western Hemisphere participated in this project through 1951 with approximately 350 of them being cited by the U.S. Air Force for their contribution to this scientific endeavor. Observers working with Project RASO submitted in excess of 125,000 observations over its 3 year term. More important, however, was the construction and operation of beacon stations in the Western Hemisphere to better understand 50 MHz propagation phenomenon. One of these beacons was that of W9MBL, Ken Evans, who received a commendation from the U.S. Air Force for his contributions to the study of sporadic-E propagation. (Excerpts concerning W9MBL from the RASO Newsletter appear elsewhere in this publication). In order to learn more about Project RASO and its contributions to the scientific studies of upper atmosphere research, I would highly recommend the following articles for reading:

CQ MAGAZINE:	AUG 1949	P. 19	Oliver P. Ferrell Radio Amateur Scientific Observations
	JAN 1950	P. 15	Oliver P. Ferrell R.A.S.O. - Public Service
	FEB 1950	P. 30	Oliver P. Ferrell The 6 Meter Observing Project
	MAR 1950	P. 33	Oliver P. Ferrell The 6 Meter Observing Project
	APR 1950	P. 25	Oliver P. Ferrell The 6 Meter Observing Project
	MAY 1950	P. 46	Oliver P. Ferrell The 6 Meter Observing Project
	JUN 1950	P. 17	N.C. Gerson The Air Force Interest in Sporadic-E

DX in the form of F2 propagation returned with a vengeance during October 1947, placing the 6 meter band in a frenzy. The South Africans finally obtained operating privileges and put them to immediate use. On October 11th, ZS1T worked PA0UN for the first European two-way on 50 MHz with South Africa. This contact broke the short-lived world record set two months before. The record now stood at 6,000 miles. Six days later, CELAH in Chile worked J9AAK in Okinawa to smash the record for the third time in less than a year, with their QSO covering 10,500 miles.

The latter part of October saw many days with cross-band activity between England and the eastern portions of North America. On October 29th, PA0UN worked two-way 50 MHz into the US for the first time. W2AMJ made contact first at 8:14 AM EST followed shortly thereafter by W3OR. W3OR's luck continued. November 1st saw a major opening between the East Coast and the western areas of North America. In addition to many W6's and VE7's, W3OR landed Alaska, in the form of KL7DY. The longest 6 meter opening to date across the Atlantic path took place on November 3rd. The band opened at 8:10 AM EST and closed approximately two and a half hours later. G5BM, G5ZT and G4NT worked a record number of US 6 meter stations via cross-band.

THE ENGLISH RECEIVE PERMISSION FOR 50 MHZ

Special temporary licenses for 6 meter work were issued by the English authorities in early November of 1947. As mentioned earlier, licenses for "experimental" purposes such as these were to expire on January 1, 1948. They were later extended to April 30, 1948. The licenses were subject to certain time and frequency limitations with 25 watts of maximum input. Stations located within London were not to operate after 1500 GCT.

Hilton O'Heffernan G5BY received his temporary license on November 5, 1947. The January 1948 CQ Magazine reported the following:

"Having no rig on 50 Mc, Hilton grabbed a few eats and worked until 4:30 AM to get a rig on. He then went to bed for 2 hours sleep and got up to have his first 50 Mc two-way with ZS1P, a distance of 6,000 miles. Forty-five minutes later he had a QSO with W1HH and another in 30 minutes with a local. Within 1 hour and 15 minutes, 3 contacts and continents."

Between November 6th and December 1st, G5BY completed 175 QSO's with 93 different stations in North America, South Africa, Egypt and Suez. Actually, Dennis Heightman G6DH was the first "G" to work the US on 50 MHz. Dennis contacted W1HDQ on November 5, 1947 at 1302 GMT. A QSO with W2AMJ took place at 1345 GMT. Later at 1620 GMT, G5BD worked VE1QZ for the first G-VE QSO. The month of November 1947 continued to be an excellent one for the British operators. In addition to the numerous trans-Atlantic openings which took place, rare DX in the form of MD5KW (Suez) and SU1HF (Egypt) graced a few logs. G6DH was the first "G" to work MD5KW which was being operated by Major Ken Ellis (now G5KW). This QSO took place on November 10th with MD5KW running 3 watts to an HK54, an S27 receiver, and a 4 element beam at 35 feet.

Hilton G5BY was kind enough to supply me with a list of British 6 meter "firsts" which took place on that eventful month of November 1947. The list is presented below:

First W1	- Nov 5, 1947	W1HDQ	- G6DH	1302 GMT
First W2	- Nov 5, 1947	W2AMJ	- G6DH	1345 GMT
First W3	- Nov 22, 1947	W3OR	- G5BY	1325 GMT
First W4	- Nov 16, 1947	W4HVV	- G2BMZ	1510 GMT
First W5	- Nov 16, 1947	W5JLY	- G5BY	1530 GMT
First W6	- Nov 5, 1947	W6AVG	- G5BD	1510 GMT
First W9	- Nov 22, 1947	W9ZHL	- G5BY	1555 GMT
First W0	- Nov 22, 1947	W0IFB	- G5BY	1632 GMT
First VE1	- Nov 5, 1947	VE1QZ	- G5BD	1620 GMT
First VE2	- Nov 20, 1947	VE2KH	- G5BY	1323 GMT
First VE3	- Nov 20, 1947	VE3ANY	- G5BY	1544 GMT
Suez	- Nov 10, 1947	MD5KW	- G6DH	0855 GMT
Egypt	- Nov 16, 1947	SU1HF	- G5BM	0900 GMT

OFFICIAL "FACTORY" STATIONS IN SWITZERLAND ACTIVE ON 6 METERS

During the late 1940's, the Swiss "indirectly" had use of the 6 meter band. The following information is from the March 1948 CQ Magazine:

"HB9BZ, Karl Belstein, gives us information on the operation on 50 MHz, saying that although the hams are not authorized 50-54 MHz, official Swiss factory stations have the spectrum from 49.6 MHz to 54 MHz. These "factory" stations evidently are the manufacturers who test their tubes in transmitters around this band. A nice break for 50 MHz DX chase as their receivers were variable over the same range, which includes 6 meters."

HB8VK: 3 element beam on top of factory (200 watts input on CW)

HB8VD: 30 watts into a dual 5 meter center-fed antenna at an angle of 40° above horizon

EQUIP: Both rigs self-controlled oscillators with FD and PA.

The receivers were variable frequency superhets.

WORKED ALL STATES ON VHF BECOMES REALITY

On June 13, 1948, Ed Greybill W9ZHB in Illinois worked W4AVT/4 at Bennettsville, South Carolina to be the first amateur to work all states on a VHF band. W9ZHB REFUSED the award for working all 48 states because the station worked was not a bona fide resident of South Carolina. However, Vince Dawson W0ZJB worked W1CGX in Vermont for his last state on July 25, 1948 and was awarded 6 Meter W.A.S. #1.

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BEACON STATION W9MBL IS COMMENDED BY AIR FORCE CAMBRIDGE RESEARCH LABORATORIES FOR CONSISTENT OPERATION LATEST 6-METER DX NEWS AND PREDICTIONS W2ZGP REQUESTS COOPERATION IN HIS AURORAL STUDIES

PAST, PRESENT AND PROPHETIC

Maybe we read this one wrong, but during one of the wind storms last fall, W3BGT lost his 6-meter antenna and his 13-element 10-meter array. Plans are now under way to rebuild with a 32-element 6-meter array (wow!!) which will be fed from his old 304TL's in push-pull W5ONS lost his array during a recent ice storm. Herb says the ice was about three inches in diameter on some of the elements of his stacked 6-meter 3-over-3. A photo was enclosed which we are unable to reproduce showing his 6 and 2 meter beams all firing straight up due to the "beautiful" lop-sided bend in the supporting pole. Herb is going to have things back together shortly with 4-elements on 10, 6-elements on 6, 10-elements on 2, and 5-elements on 220-mc W5NHD is completely re-vamping his station and expects to be back on the air by the time this appears in print, with a crystal-controlled converter into a HRO-50T. Porter's new transmitter uses a 4-65A in the final VE3AJS, Belleville, Ontario is back on the air after a 6-

Cont. on page 4

LATE DX FLASH

The band reopened to South America on March 3rd. W5FXN made contact with HC20T at 1455 CST. The signal faded badly until 1530. From 1535 until 1620 Jim had several QSO's with Steve. Also heard was a Spanish speaking station between 1620 and 1625 CST on about 50.5 mc. More details in our next Newsletter.

W4GMP, Key West reports seeing and hearing XHTV, Mexico City (Channel 4) on March 1st with a very strong signal.

WOULD YOU BELIEVE IT?

It has often been said that during one of these good sporadic-E openings you could probably scratch two wires together and make a contact. Possibly that is stretching things a little, but we were greatly interested in watching the characteristics of the opening on 27 June 1950. According to our records it was one of the best ever observed on 6. At one time, observations were being recorded at the rate of 17 per minute!

Cont. on page 4

ABOVE: Reproduction of the RASO Newsletter dated February 28, 1951 with story of the United States Air Force Commendation Certificate which was presented to W9MBL for the operation of his 6 meter beacon which assisted in the study of sporadic-E propagation.

LATEST DOPE ON THE BEACONS

• **VE9RB** - 49.98 mc - Ottawa, Ontario, Canada

This station continues to provide 24 hour service with fewer interruptions for maintenance, etc. The coding is via CW as "VE9RB RASO TEST".

The antenna is a ground plane vertical mounted on a tower about 100 feet above ground level. The power output is of the order of 120 watts. This station is operated in co-operation with the 6-meter Project by the Defence Research Telecommunications Establishment (Radio Physics Laboratory), Department of National Defence, Canada.

• **VE9RA** - 49.99 mc - Halifax, Nova Scotia, Canada.

This station is also operating on a continuous 24-hour schedule with only appropriate short interruptions for maintenance, etc. The coding is via CW as "RASO PROPAGATION TEST DE VE9RA VE9RA VE9RA HALIFAX NOVA SCOTIA CANADA". The present antenna is a simple vertical ground plane about 45 feet above ground level. The transmitter operates at 100 watts input using an 829B in the final amplifier. The power may be increased by the middle of this coming summer. This transmitter is operated at the Naval Research Establishment, Halifax at the request of the Defence Research Board, Department of National Defence, Canada, in cooperation with the 6-meter Project.

• **W9MBL** - 50.10 mc - New Castle, Ind.

Generally operates from approximately 0845 until 2200 EST, however, this station has been experimenting with 24-hour operation. The coding is via MCW as "W9MBL W9MBL W9MBL W9MBL W9MBL W9MBL".

The spacing between the call letter groups is about 15 to 20 seconds. The antenna is omnidirectional and the power input is 30 watts.

• **W5AJG** - 50.04 mc - Dallas, Texas

This station has been operating on an experimental schedule on this frequency, pending arrival of a crystal for 50.10 mc. The coding is via CW as "W5AJG W5AJG W5AJG W5AJG". The dash is held for six seconds. The transmitter is a 6AC7 into an 815 at about 30 watts input.

The antenna is a vertical folded dipole about 60 feet above ground level. This may slightly reduce the field strength to the south and southwest. The hours of operation may be irregular but should be approximately 0900 until midnight EST.

• **W4LAW** - Tampa, Florida

An SCR-522 has been converted as the beacon transmitter at this station. A crystal is on order to set up on 50.10 mc and should be delivered by the end of March. Further details will be released in a Special RASO Bulletin as soon as they become available.

W9MBL BEACON TRANSMITTER

Cont. from page 2

that the first dot closes a relay, which turns on the exciter and holds it on for the duration of one W9MBL, then it releases.

The antenna is a pair of phased dipoles mounted at right angles in the same plane and fed ninety degrees out of phase. A quarter wave section of 52 ohm co-ax is used as a matching transformer between the 97 ohm feed line and the antenna.

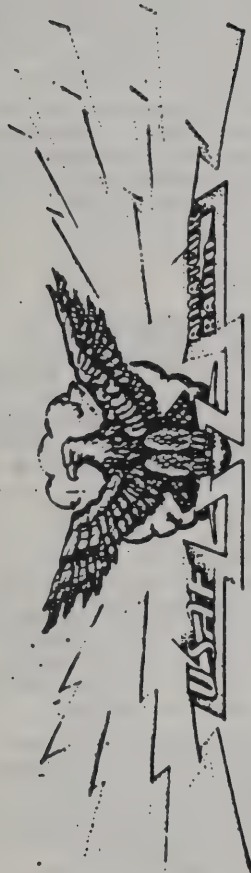
A LOOK BACKWARDS (5 March - 5 April, 1950)

North America: DX throughout this period last year reached its lowest ebb. Auroral scatter was observed on the morning of March 19th, the evening of March 21st, the afternoon and evening of April 1st, 3rd and 5th. No sporadic-E was observed, although the band opened to South America from the southwest on March 11th and 18th. It was also open, with short F2-layer openings, on 22nd and 26th of March. The biggest F2 opening of the year occurred on April 2nd between W4-W5 and the LU's.

South America: The F2-layer post-sunset scatter openings occurred on every evening except March 21st and April 5th. The F2-layer was active on the dates noted above. Best openings were reported on March 14th and 25th.

ALWAYS CHECK 49.98-49.99-50.10

ABOVE: Excerpt from the RASO Newsletter dated February 28, 1951 with a rundown on some of 6 meter's early beacon stations.



THE UNITED STATES AIR FORCE

DESIRES TO EXPRESS ITS APPRECIATION TO

Ken V. Evans

OF

W9MBL

New Castle, Ind.

FOR PARTICIPATING IN THE COOPERATIVE NETWORK OF RADIO AMATEUR OPERATORS

(FREQUENCY RANGE 50 TO 54 MEGACYCLES) OBTAINING SPORADIC E DATA DURING

THE PERIOD *6 June* 1949 TO *31 October* 1951

CERTIFICATE NO. **82**

H. E. Landsberg

H. E. LANDSBERG
Director
Geophysics Research Division
Air Force Cambridge Research Center

J. F. Phillips

JAMES F. PHILLIPS
Major, General, USAF
Commanding
Air Force Cambridge Research Center

ABOVE: Reproduction of the certificate presented to Ken Evans W9MBL for the operation of his 6 meter beacon which assisted in the study of sporadic-E propagation.

6 METER RADIO AMATEUR OBSERVING PROGRAM BEGINS

In May of 1948 a cooperative 6 meter radio amateur observing program was formed. This program was the first concerted effort to study sporadic-E layer transmissions above 30 MHz. The Geophysical Research Division of Watson Laboratories under contract to the Air Materiel Command (United States Air Force), were responsible for analyzing the observations and reports of radio amateurs. The formation of this observing program was due to the unrelenting work of CQ Magazine's Assistant Editor, Oliver Perry Ferrell. The program began officially during the last week of June with introductory and report forms being sent to 155 known active 6 meter operators. Two hundred observers and 25 foreign associates formed the work group on 6. Known as RASO, an acronym for RADIO AMATEUR SCIENTIFIC OBSERVATIONS, this program ran for a number of years and played an important role in the development of the 6 meter band.

TRANSEQUATORIAL PROPAGATION IS "DISCOVERED"

By the fall of 1948, Mexico had as many as 15 active operators on 6 meters. Most of them ran high power levels to yagi antennas. In Argentina, as many as 50 stations, some running as much as 300 watts, were looking towards the north for contacts. As fate would have it, the operators of both countries soon realized that a path between them existed quite often on 6 meters. On many occasions openings were intense with very solid signals. Although the mystery of "why" was unanswered at the time, amateurs took full advantage of this propagation medium.

On January 24th, 25th and 26th, 1949, a very severe ionospheric storm took place. The storm began at 1400 EST on the 24th and continued to 0700 EST on the 26th. Needless to say, the 6 meter band was filled with sporadic-E and aurora. On the 25th, HC2OT in Ecuador worked W5NXM at 1800 EST followed by other W5's. HC2OT's signal was heard as far north as W0. This was the first prime evidence of TE propagation during an ionospheric disturbance. Less than a month later during another aurora session, Bill Colburn W1ELP in Massachusetts worked HC2OT via TE for the first W1 contact into South America.

T H E E A R L Y 1 9 5 0 ' s

As Solar Cycle 18 drew to a close activity continued to grow, especially in the Western Hemisphere. Active stations included CO2EV, CO2QY, CO2WL, CO2FN, CO6WW, CX1AQ, CX1AY, CX3AA, HC1CA, HC1OT, HC1JW, HK1DW, HK1DX, PZ1A, PY1DS, PY1LQ, PY2AC, PY2PK, PY4CL, TG5CH, TG9UA, TI2AFC, KZ5NB, KZ5AY, XE1FE, XE1A, XE1GE, XE1QE and XE2C.

About the same time, a new mode called Single Side Band (SSB) was making inroads and SSB articles began appearing in amateur publications. Although many jumped on the SSB bandwagon realizing its full potential, most 6 meter operators stayed with AM operation. As a matter of fact, it would be another 15 years before SSB would reign as the dominant mode on the band.

1956: THINGS HEAT UP ON SIX

In late 1955, the Swiss Federal Observatory announced that the new Sunspot Cycle (19) began in April of 1954 and would be one of outstanding intensity, with a maximum likely to surpass all others observed. The spring of 1956 saw a few openings between North America and Argentina but it wasn't until the fall that things began looking up for the first time in 7 years. By late October, European signals well up to 53 MHz with facsimile, RTTY and ship-to-shore were heard in the US. BBC Channel 2 video on 51.75 MHz was heard clearly and the BBC TV audio on 53.50 MHz was broadcast quality at times.

On October 27th, Bob Cooper K6EDX (now VP5D) worked JALACH for the first W-JA QSO. Bob was awarded a silver medal by the Asahi Shimbun Press and the Japan Amateur Radio League (JARL) for this 50 MHz first. By November, many West Coast stations had worked into Japan. On November 25th, Jim Fraser VE7AFB running 10 watts to a 3 element beam, worked JALASG for the first JA-VE QSO. During the month of December, cross-banding with Europe was almost a daily occurrence. Active European stations included EI2W, G3COJ, G5BD, G2BDQ, G3AYC, G6DH, G3IUD, G5JU, G3FXB and GD3GMH. On December 25th, the W5AJG beacon was heard by CN2AO at 5/9+ in Tangiers.

The big news of 1956 was the new world record which was set by LU9MA and JA6FR on March 24th at 0420 GMT (0120 LU Time: early morning). This historical QSO took place on a frequency of 50.350 MHz and stretched the distance record to 12,000 miles. Thirty minutes later, JA6FR worked LU3EX.

1957: THE BAND IS ON FIRE

The International Geophysical Year began during 1957 - an international research program concerning the geophysics of the Earth. This research program included major studies of the ionosphere as well as other areas such as climatology, meteorology and geomagnetism. To further enhance these efforts, many countries not normally operational on 6 meters were granted privileges. The first of these countries was Portugal, who authorized amateurs to utilize 50-54 MHz until December 1958, the official end of the IGY. This authorization included CT2 (Azores) and CT3 (Madeira). Operators who took advantage of these privileges included CT1CO, CT1ST, CT3AN and CT3AE.

Other countries allowing operation on 6 meters included Norway and Sweden. Norway authorized 50-54 MHz with daytime operation up to 1900 GMT. The original authorization was to expire on July 1, 1958 but was later extended until the end of 1959. The Swedish amateurs were allotted 50.0-50.5 MHz on an individual basis to Class A licensees. With 150 watts maximum allowed on CW or voice, their privileges were valid from June 1, 1957 until December 31, 1958. Active Swedish stations included SM5SI, SM6ANR, SM6BTT, SM5CHH and SM7ZN. By March of 1958, SM7ZN had worked 29 states and SM6BTT had worked 27.

In addition to Poland who allowed full 6 meter privileges with stations such as SP2DX, SP5AR and SP5BR active, Russian amateurs operating on their 38-40 MHz VHF Band were looking for cross-band contacts with US stations. Authorities in Switzerland gave temporary permission to amateurs allowing them full use of the 6 meter band. However, the Swiss stations were restricted to a maximum power of 50 watts and could only operate when TV was off the air. HB9BZ was quite active and on April 5th he worked ZS6UR.

Probably one of the most well-known European amateurs to be granted special 6 meter privileges during the IGY was Harry Wilson EI2W. Harry's station was located at Foxrock, Co. Dublin, Ireland at a height above sea level of 240 feet. Harry used a homebrew AM transmitter of low power design with an input of 40 watts, crystal controlled on 50.016 MHz. He was only able to operate until January 28, 1958 due to business commitments, however his extensive research with various antennas in a very short period of time brought about some interesting questions concerning propagation. Even today, his findings are quite fascinating. Due to the extent of EI2W's work, I have set aside a section of this project to more closely examine his findings.

With the extra added activity on 6 meters and a high sunspot count, the stage was set. A record amount of DX was worked by all during 1957-1958, however, due to space limitations, I will only comment on the more interesting QSO's that took place.

By early 1957 the African Continent was jumping with 6 meter activity. In addition to the approximately 50 ZS's that were active on the band, other countries represented were Kenya (VQ4EU), Uganda (VQ5GF), Nyasaland (ZD6EF, ZD6UT), Belgian Congo (OQ5FM), Mozambique (CR7AU), Northern Rhodesia (VQ2PL), and Southern Rhodesia (ZE2JD, ZE2JR, ZE2JE, ZE2KM, ZE2KO and ZE2KZ). On February 18, 1957, W8LPD in Cincinnati, Ohio worked VQ2PL and ZE2JE for the first W-Africa 6 meter contacts.

On October 25th, W4UMF worked SM5CHH for the first W-SM QSO ever. After this contact, SM5CHH then proceeded to work a string of W stations. Two days later on the 27th, EI2W worked W2JTE for the first W-EI contact on 6. Harry then worked W2UTH and W8CMS. On November 2nd he worked VE3AIU for the first EI-VE QSO. Three days later, EI2W made history by working Bob Perry K6GDI in California enabling Bob to be the first amateur to work all continents on 6. K6GDI's other WAC QSO's included KH6BRJ, LU4DFN, ZE2JE and JA2QR. Bob was not able to secure all the required QSL cards right away in order to apply for the Worked All Continents Award. However, he did receive the West Palm Beach Radio Club Trophy for the first VHF WAC. The first to qualify for the 6M WAC by having the required confirmations was Paul Boberg W6BAZ. His award was dated 1-28-58 with all QSO's on voice. The first 10 stations to qualify for the 6M WAC Award were: #1 W6BAZ, #2 W6BJI, #3 W9DSP, #4 K6GDI, #5 W0QIN, #6 W9HGE, #7 W0SMJ, #8 W0OGW, #9 W6FZA, #10 W0QNM.

On November 16th and 17th, the band opened from W1 to KL7 for the first time ever. On these two days, KL7CDG, KL7AZI, KL7AUV and KL7AH worked many stations in all areas of the states with excellent signals. By the end of the month, the band was open from the West Coast to Japan on a daily basis.

The 1958 DX season proved to be as just as interesting as the year before. On November 1st, W2UTH worked OH2HK in Finland for the first W-OH QSO. Ray OH2HK was running 30 watts into a 350 foot longwire antenna at the time. In Japan, 600 stations were active on 6, almost 10% of their total ham population. On the 23rd of November, W4GJO in Florida worked JA1AAT, JA1BLZ and JA1BIR.

The late 1950's were definitely exciting times. It is almost impossible to chronicle all the activity which took place. In brief, active cross-banders included: EA1EY, F9BG, G2BVN, G2CDI, G3BTA, G3BXI, G3CQJ, G3FXB, G3IUD, G3XC, G4LX, G5BD, GM3EGW, PA0FM and OH5NW. Other active DX stations not previously mentioned included: DU1GF (Philippines), VS6CJ (Hong Kong), VU2EJ (India), MP4BBL (Kuwait), KR6AF (Ryuku Island) and FF8AP (Senegal).

6 METERS GAINS IN POPULARITY

Even though Cycle 19 was winding down and DX was scarce, 6 meters experienced a tremendous growth in the US and Canada. The early 1960's saw many new equipment manufacturers arrive on the scene with 6 meter gear being available in large quantities. The gear of the early sixties was primarily AM, however, by the end of the decade, multi-mode and SSB-only rigs were being produced. Six meter nets and roundtables popped-up in many areas of North America and 6 meter mobiling was a popular pastime. The band was used by many clubs for get-togethers with members as well as the active useage of Civil Defense and amateur emergency groups. All of this activity was curtailed by a substantial margin by the end of the decade due to interest in 2 meter FM work and repeaters. By the early 70's, many CD groups and nets moved to the 2 meter band leaving only a very small number of operators on the band.

The DX exploits of Cycle 20 were very disappointing as compared to Cycle 19. The first evidence of F2 propagation due to the new cycle appeared in the fall of 1967 with southern areas of the US working into South America and West Coast stations working into Hawaii. Probably the biggest DX news of Cycle 20 took place on december 1, 1968 at 1515 GMT when W2UTH nabbed ZD8NK on Ascension Island. Another interesting event occurred during 1969 and was covered in the June 1969 QST, page 91 - Mel Wilson W2BOC made the first recorded aurora reception across the Atlantic by making a strip chart recording of the BBC TV signal on 41.5 MHz.

FIRST VHF CONTACT BETWEEN RUSSIA AND AUSTRALIA

The early 1970's were somewhat uneventful in terms of DX. By 1976, things started to get interesting. During that year, sporadic-E was very intense and consistent. as an example, K6DYD in California worked all 50 states in only 6 weeks. Also, YV5ZZ in Venezuela (a newcomer on 6) provided many stateside stations with their first YV QSO. However, the most bizarre event of the year was reported by Bill Tynan W3XO in his "World Above 50 MHz" column in the March 1977 QST Magazine. It was reported that VK3BIZ in Australia worked two Russians on the 6 meter band. The following is from QST Magazine, March 1977, page 83:

"The VHF column in the December issue of Amateur Radio, the Journal of the Wireless Institute of Australia, contains a fascinating story. It relates that after working a number of JA's and UA0's on 10 meters, VK3BIZ of Melbourne went to 6 and worked a raft of JA's. At about 0505 UTC followed by a CQ, VK3BIZ was called by a station thought to be a JA0. A QRZ brought a request to QSY down. After some frequency gyrations, he identified the calling station as UA0CCY. Reports of 569 both ways were exchanged but QSB set in before final rogers could be received. At that point a second station was heard signing RA0CCM. A full CW contact including exchange of names was completed with this station. The frequency for VK3BIZ was 52.001 MHz and for the Russians, 51.990 MHz. Thus it was that a piece of VHF history was written as a result of alertness and good operating on the part of one Australian and two Russian hams. Thanks to Ray Clark K5ZMS, SMIRK #1, for passing along this interesting story."

The Upper Spectrum

Quarterly

The Voice of the V.H.F. Research Society of Ireland

December 1952



Mr. H. L. Wilson, P.C. (Ei2W), left, President of the VHF Research Society of Ireland and Hon. Editor of "The Upper Spectrum," with Mr. Edward P. Tilton (W1HDQ), the distinguished American writer on Amateur Radio and VHF Editor of "OST." This picture was taken in West Hartford, Conn., U.S.A., during Mr. Wilson's visit to the American Radio Relay League headquarters in 1950. Mr. Tilton has sent a message to our Society and this appears on another page.

The V.H.F. Research Society Of Ireland, 1952

President—H. L. WILSON, P.C. (Ei2W).

Northern (GI) Area Council :

T. PALMER ALLEN, M.Sc. (Gi6YW).

W. G. DICKSON (Gi3BIL).

W. A. KANE (Gi3GQB).

W. H. MARTIN, M.A., B.Sc. (Gi5HV).

E. R. SANDYS (Gi2FHN).

Southern (EI) Area Council :

DR. E. M. FOLAN (Ei6W).

BASIL E. KING (Ei5Y).

COMMDT. T. A. HURLEY (Retd.) (Ei3R).

C. J. MCCARTHY, B.Sc., A.R.C.Sc.I. (Ei6G).

H. RILEY (Ei2G).

All communications should be sent to the Society's Offices, 97 St. Stephen's Green, Dublin, C.2 (Telephone 51947), and addressed to Hon. Editor.

We are pleased to receive the following message from W. H. Allen, Esq., O.B.E., VHF Editor of the R.S.G.B. "Bulletin."

To the President and Members of the VHF Research Society of Ireland.

It is with great pleasure that I welcome the formation of a Society with the avowed object of stimulating interest in the VHF bands and it is indeed gratifying to learn that no less than seventy amateurs in Eire and Northern Ireland have already joined your ranks.

The most difficult period for any organisation to pass through is not its formation but that time when,

the first enthusiasm having worn off, the temptation arises to let things drift—the "leave it to George" period. That may lead to apathy, often to discontent.

"It is inevitable with any organisation that most of the donkey work is done by a few whose untiring efforts keep the whole thing going; but with the active support of all members whose watchword should be "What can I put into it?" rather than "What can I get out of it?" you should go far in adding to the achievements of Amateur Radio and to knowledge, both practical and theoretical, of the higher frequencies.

(Signed) W. H. ALLEN (G2UJ).

Thanks, "Bert," for your inspiring message.—Editor, UPPER SPECTRUM.

SPECIAL ANNOUNCEMENT

R.S.G.B. President To Visit Ireland

The President of the Radio Society of Gt. Britain, Mr. F. J. Charman, B.E.M. (G6CJ), has accepted the invitation of the V.H.F. Research Society of Ireland to attend our convention in January. He expects to bring his famous collection of Model Aerials with him, and may be accompanied by a leading VHF speaker from R.S.G.B. A dinner will be given in honour of Mr. Charman during his visit. It will be his first time in this country.

The American Radio Relay League

Administrative Headquarters

WEST HARTFORD 7, CONNECTICUT, U.S.A.

VHF RESEARCH SOCIETY OF IRELAND,

c/o HENRY L. WILSON (EI2W), President.

September 30, 1952.

Gentlemen,

It was good news, indeed, to learn of the formation of your Society. In almost any line of human endeavour, we can progress more rapidly and surely if we combine forces. Working together we can surmount difficulties and solve problems that would be impossible for any one of us alone. In no field is this more true than in the one for the study of which you have banded together.

In working on lower frequencies it is quite possible to go it alone and do a good job. The world is at the doorstep of the low-frequency operator, and there have been so many before him that he can get along without the help of his nearer neighbours, if he so desires. But it is different with the VHF enthusiast. He may chase DX some of the time, but much more often he finds himself able to work only within his local circle. The more closely he is associated with the others in his neighbourhood, the more pleasure and satisfaction he is likely to derive from the time spent working at his hobby.

In common with people everywhere, hams tend to worship distance. "The prophet is without honour in his own country," but in the far places his word is highly respected. As hams we tend to glorify DX—just because a fellow is on the opposite side of the world we tend to build him up in our minds. What a fine fellow he is—that man of whom we know almost nothing! Why?

To my mind, one of the first steps in promoting greater enjoyment of VHF operation is to recognise, once and for all, the basic fallacy of this line of reasoning. Because the majority of our operation is within an essentially local sphere, we must recognise that the fellow in the next town, or the next block, may be just as good a ham as the one in Afghanistan. Chances are he's a whole lot better! He's a good man to know, and there are endless things we can talk over, both on the air and in personal get-togethers, that will be of mutual benefit. Can we establish such mutually beneficial relations with hams 10,000 miles away?

A fundamental problem in VHF hamming the world over is the promotion of activity. DX is fine, and we're all for it, but how do we hear or work DX, if there is nobody on the air in the part of the world to which the band is "open" at a given moment? We need the occupancy first. Then we need earnest co-operative effort devoted to the advancement of the art. It is through the formation of groups such as the VHF Research Society of Ireland that these ends can best be served.

On behalf of the VHF enthusiasts of America, may I extend our best wishes. Is there one among us who is willing to state that we may not some day express this feeling of friendship in a radio communication on 144 mc or higher? Good luck to you all!

EDWARD P. TILTON (WIHDQ),
VHF Editor, QST.

*Thanks, Ed! Please convey to the staff of A.R.R.L. and QST the best wishes of our members.—EDITOR,
Upper Spectrum.*

PAGE TWO

THE UPPER SPECTRUM

ROINN POIST AGUS TELEGRAFA
(Department of Posts and Telegraphs)



Lamh Uimhir }
Quote Number } ..TW. 595.

Do Thag. }
Your Ref. }

Uimhir Telefóna }
Telephone No. } 41831

BRAINSE TELECHUMARSAIDE,
(Telecommunications Branch)

ARAS HAMMAM,
(Hammam Buildings)

BAILE ATHA CLIATH.
(Dublin)

15 Deireadh Fomhair, 1958.

A Chara,

With reference to your letter of the 4th October,
your experimenter's licence is hereby extended as
follows:-

<u>Frequency</u> (Mc/s).	<u>Maximum Power</u> (Watts)	<u>Types of Emission</u> A1 and A3
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50.072	50	
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This extension applies only until 31st December, 1958.

Your kind remarks are very much appreciated.

Mise, le meas,

(A. O'Riordan).

Henry L. Wilson, Esq.

INTERNATIONAL GEOPHYSICAL YEAR 1957/58.

Observations made at Foxrock, Co. Dublin, Ireland, during the period 27th October 1957 and 28th January 1958 of F₂ layer propagation of 50 MHz radio signals between Ireland and North America.

Equipment used in the tests and during observations:-

The station was located at Foxrock, Co. Dublin (my previous address) and had a height above sea level of 240'

Long 6° 14' 40" West. Lat. 53° 15' 15" North.

The transmitter used was a low power home built rig using the following valves. 6AQ5-6AM5-832-829B. Input 40 Watts Maximum and crystal controlled. Frequency 50.016 Mhz. Amplitude Modulation. Telephony was used throughout the tests.

The convertor was to the design of G2UJ (Mr W.H. Allen.) formerly V.H.F Editor of the R.S.G.B. Official Bulletin. It was originally used for 144 Mhz and was converted to the lower frequency for the tests. It had a low noise level with good stability. Valves used were 6J6-6AM6-6BQ7. The convertor was fed into a Collins 75A-4 receiver at 7.5 Mhz.

The station was operated exclusively by E12W during the tests.

Antennae. One 3-Element rotary beam was kept as a permanent antenna on top of a 50' steel tower. An extension was available to increase the height of the antenna to 65'. Nine other aeriels were used during the observations. These ranged from two to ten elements. The element diameters varied from 3/8" to 1". Several types of driven elements were employed, and at different spacings. A special mast was used to enable a quick change over of aeriels. A tilting head mechanism was also employed.

Conclusions. Owing to other important observation work on hand and working to a limited time schedule it was not possible to devote the necessary long periods to antenna experimentation. It would appear, however, that the use of a tilted antenna for 50 Mhz double hop F2 Layer working gives an important gain. On single hop, this was not nearly so marked. There appeared to be an optimum at 5,000 to 6,000 Miles. This characteristic was not observed before on other V.H.F. Bands.

The ground plane gave excellent results when used for transmission around dusk, and when the band was going out. It was found to be very noisy on reception.

The three element folded dipole, wide spaced, was found to be quiet and sensitive in operation. It had a good acceptance angle with minimum re-orientation. The elements used were 3/8" dural. The five element wide spaced yagi in conjunction with the tilting head was found to be the best all round antenna under test. It had 5/8" diameter tubing for the elements, and a split dipole. The feed took place through a bazooka with 52-ohm Amphenol co-ax (RG8/U). Set at an angle of 60° with the tilting head, this antenna was effectively used on the 17th November 1957 when 18 Stations in the W5-6-7 call areas were worked. The noise level greatly increased when the antenna was lowered to a horizontal plane. Used on a test with a station in Arizona, the tilting of the boom to 60° increased the signal response over the noise level by 9db or approximately 1 1/2 "S" Units. This was considered a very important gain. With the exception of the three element beam described above, all feed lines were 52-ohm. The three element was 75-ohm TV low loss co-axial cable. HORIZONTAL PROPOGATION (Polarisation) was used with all multi-element beams.

The highest recorded MUF at this station was 61.75 Mhz at 1450 hours GMT on the 4th January 1958.

OBSERVATIONS DURING 19th CYCLE. 1957/58

1. It was noticed that signals between Ireland and the U.S.A were considerably stronger when short distance contacts were taking place in the United States, possibly high M.U.F periods.
2. Observations made of noise levels indicated that the latter part of November 1957 was the quietest period, and that the third week in December 1957 produced very high noise levels.
3. That height above sea level is an important factor in all V.H.F operation, including 50 Mhz, was again demonstrated during these tests. The most consistent and strong signals heard on the band during openings, were from high altitude stations.
4. Checks were made on the 28 Mhz band during these tests. Very little signal strength fluctuations were noticed until the M.U.F soared above 53 Mhz. The 28 Mhz signals then weakened considerably, with a great increase in signal strength of stations operating between 50 and 50.1 Mhz.
5. Tests were made during the period with a variety of beams and beam settings. On the 15th December 1957 when activity on the band was at a low level, the beam was pointed North. Signals of great strength and stability were heard from K1CAR who was calling another U.S.A. Amateur at 1708 hours G.M.T and from W1EPV who was calling "C.Q" at 1715 hours G.M.T. Moving the beam slowly west through north-west eliminated all trace of the signals.
6. On days of high M.U.F, transmissions were made on the 70mhz channel on a frequency of 70.662 Mhz, crystal controlled. These tests were carried out with the co-operation of Mr W.E. Tilton (WIHDQ) the V.H.F. Editor of Q.S.T. Magazine, and a leading American experimenter and amateur. Amateur radio stations W8SSD in Ohio and W1QCC/FPVE1 in Nova Scotia also joined in these tests. Despite the magnificent efforts of Ed Tilton and these amateur stations no success could be reported. The early part of January appeared to provide ideal conditions for experimental work but the small number of American stations equipped for listening, was disappointing. U.S. and Canadian amateurs are recommended to get gear for autumn and winter 1958 tests. Although we may have passed the peak period during this cycle an attempt is nevertheless well worth the trouble.
7. On days of high MUF, strong double hop signals were in evidence. Several stations in the W1 area (Mass and Conn) were arriving with strong signals from California. In the intervening 2800 miles between these call areas, no signals were heard. The best days were 3rd, 4th, and 5th January 1958. On the latter day signals were coming in from Arizona (W7) at great strength. The highly elevated stations in this state were dominating the band.
8. On the evening of 5th January 1958, the 50mhz band appeared to close at 1701 hours GMT with the usual increase in noise level. The writer noticed a peculiar flutter about an hour later on the TV screen (45 Mhz Channel). It was decided to again listen on the 50mhz band, first on a wide range VHF receiver and then on the convertor. The beam was directed to various beam headings. On pointing North, four stations were heard W5UFW (Texas) K0KWS (Colorado) W0IXF (Colorado) and W5NSJ (New Mexico). The writer called W5NSJ and exchanged telephony signal reports of S8 out and S7 in. The contact was not due to Aurora propagation. There was no sign of hiss or distortion, but a distinct even flutter.

Experiments with the Tilted Antenna.

Following experiments with the tilting of the antenna to 60° I was of the opinion that a new layer was forming above the F2. This would necessitate an increase in the antenna angle to utilise the higher layer for propagation. In other words to overcome the critical angle of the F2 by passing through it.

I decided to write to my good friend, Dr Smith-Rose, Director of Scientific and Industrial research at Slough, Buckinghamshire, about the possibility of the "F" Layer splitting up. He discussed the matter with another scientist in his department, Dr Saxton and the latter wrote to me as follows:-

Department of Scientific & Industrial
Research, Radio Research Station,
Ditton Park, Slough, Bucks.

10th June 1958.

Dear Mr Wilson,

Dr Smith-Rose is away from the station at present on leave, and he has asked me to reply to your letter of the 21st May to avoid undue delay in the matter.

We have read your report on your observations in the period October 1957 to January 1958 with great interest: You certainly seem to have had considerable success with your VHF transatlantic investigations. We do not, however, think that you can regard your results as indicating the existence of a more intensely ionized region above the F2 layer, for any evidence we have for the same period, would not support this conclusion. With the vertical radiation pattern your aerial is likely to have, tilting it through 60° might not make a large difference in the strength of reception via the F2 layer (in its normal place) but from your own evidence the noise level would be much reduced, thus resulting in an appreciable better signal-to-noise ratio. I hope these comments are helpful, for we can see no other ready explanation of your observations.

Dr Smith-Rose and I were sorry not to see you at the London dinner on May 17th; It was a most successful and enjoyable function.

yours sincerely,

(Signed) J.A. Saxton

Two months later I received a letter from a Scientist in Woomera Australia who had read about my theory in an American scientific magazine outlining my F2 layer observations. He forwarded a chart of mathematical calculations and stated that there might be some grounds for investigation of this theory during another cycle.

I did not operate during Cycle NO. 20, but hope to thoroughly investigate the matter prior to and during the 22nd Cycle around 1989/90.

INTERNATIONAL GEOPHYSICAL YEAR. 1957/58.

Weather and propagation conditions on days when observations were made.

Date. 1957	Bar.Daily 1500 GMT	AIR TEMP.	PROP COND.	Call Areas Worked.	Stations worked.
Oct 27.	1006	46.3	Fair	W2 W8	3
Nov. 1	984.1	45.5	Good	W1-2-3-8	14
2	998.8	41.1	Fair	W9.0 VE1	3
4.	968	36.2	Fair	W1-4-8	11
5	963.8	42.2	Good	W1-2-3-6	6
6.	987	36	Poor(F)	W1	1
12	1012.6	48.4	Fair	W1.VE3	9
13	1017.2	48.7	Good	W1-2-3-5-8 and VE1	13
14	1017.7	46.8	Fair	W1-2-3-4	6
16	1018.6	42.8	Good	W7 (Little Activity)	1
17	1020.4	42.3	Excell.	W1-5-6-7	18
19	1002.5	49.8	Fair	W7	1
20	1016.5	46.2	Good.	W4-8.	6
21	1020.1	46.4	V Good.	W1-5-7-0	19
22	1017.7	37.7	Fair	W1-5-8-VE	6
24	1024.2	40.2	Good.	W1-2-4-8-9	7
30	1019	45.6	Poor(F)	W1	1
Dec 1	1015.1	44.3	Fair(F)	W1-VE	4
2	1015.1	41.3	Good	W1-2-4-8	19
3.	1017.9	38.2	Good	W1-2-3-4-8 and VE	11
8	978.1	51.3	Fair	W1-8-VE	6
22	999.5	45.9	Fair(F)	W1	3
25	1006	34.7	Poor(F)	W1	5
29	1010.5	42.2	Good	W1-3-4	6
1958					
Jan 3.	1006.5	41.8	V-Good.	W1-4-5-0	14.
4.	1004.2	42.2	V-Good.	W4-5-6-7-9 and VE	18
5	975.2	44.8	Good	W1-4-5-7	5
6	973.3	41.7	Good	W1-3-6-9	4
7	999	42.1	Good	W1-3-5	4
8	999.3	44.9	Good	W1-2-5-0	8
12	1004.3	39.9	Fair	W9	1
13	1015.7	42.2	Fair	W2-3-8 VE	5
14	1020	50.1	Poor	W1-8	3
16	1024.9	48	Fair	W1-8-VE	4
17	1021.9	45	Good	W4-8	4
19	993	32.3	Good	W2-9	2
20	995.3	32.4	V-Good	W1-4-8-9-0 and VE.	7
22	992.7	32.6	V-Good	W1-2-4-VE	14
23	979.3	27.2	Poor.	No Opening.	0
24	990	37.~	Poor.	W1	2
26	992.9	50.1	Good	W1-3-8-VE	5
27	995.7	52.2	Fair	W1-8	6
28	999	45.2	Poor(F)	W1	1

(F) Fringe Opening.

Owing to business commitments I was unable to record observations after 28th January 1958.

STATES WORKED BY E12W On 50 MHZ DURING
THE INTERNATIONAL GEOPHYSICAL YEAR AND
DATES 27th October 1957 to 28th January 1958

The call signs given are the first stations worked in each state or province.

1. NEW YORK	W2JTE.*	19. Colorado.	K0KWS.
2. OHIO.	W8CMS.	20. Wyoming.	K7ILL.
3. MASS.	W1HOY.	21. Michigan.	K8ACC.
4. VA.	W4UCH.	22. Kansas	W0ZJB.
5. NEW JERSEY.	W2RGV.	23. LA	K5GKH.
6. PA.	W3RUE.	24. Iowa.	W0PFP.
7. Wisconsin.	W9DSP.	25. Missouri.	W0IBL.
8. Minn.	K0AKJ.	26. New Mexico.	W5NSJ.
9. Maine	W1GKJ.	27. Nth Carolina.	K4JDD.
10. New Hamp.	W1YQH.	28. Illinois.	W9QUV.
11. TENN.	W4LNB.	29. Vermont.	W1HFN.
12. Maryland.	W3OJU.	30. Florida.	W4UUP.
13. Calif.	K6GDI.	31. Alabama	K4HJB.
14. Conn.	W1LGE.	32. Missipi.	K5DOZ.
15. Rhode Island.	W1IGP/FP	33. Nebraska.	W0YZJ.
16. Texas	W5PDE.	34. Arkansas.	W5EMT.
17. Arizona.	W7GRA.	35. Indiana	W9BSL.
18. Okla	W5VCJ		

* First USA Station worked.

This list completes the 35 States worked in the 19th Cycle.

Canadian Provinces.

VE1PQ.

**VE3AIU.

** First Canadian Station worked.

During the period 27th October 1957 to 28th January 1958 W1HOY was worked 19 times and was the most consistent signal on 50mhz over the whole operating period. W8CMS and W4UCH were always reliable and strong signals when the band was open.

The strongest signals were from the states of Texas and Arizona.

The earliest recorded opening of the band was on Christmas day 25th December 1957 when W1LGE was worked at 1335 Hours GMT. Latest opening was on 5th January 1958 when W5NSJ (New Mexico) was worked at 1828 GMT with the beam pointing to the North Pole.

During the period 271 Contacts were established with 190 different stations in 35 States and 2 Canadian provinces.

BREAK UP OF AREA CONTACTS.

W1/K1	74	Contacts	with	41	Different	Stations.
W2/K2	46	"	"	23	"	"
W3	14	"	"	14	"	"
W4/K4	27	"	"	21	"	"
W5/K5	36	"	"	32	"	"
***W6/K6	4	"	"	4	"	"
W7	9	"	"	7	"	"
W8/K9	20	"	"	12	"	"
W9/K9	5	"	"	5	"	"
W0/K0	23	"	"	21	"	"

*** Each of these four Californian stations obtained WAC Award on 50 MHZ for completing the working of Europe on this band.

CAN ADA. VE1. 11 Contacts with 8 Stations.
VE3 2 " " 2 "

In an effort to collect data on extreme range 6 meter sporadic-E propagation across the North Atlantic, the IARU planned an observation program with the FX3VHF and VELSIX beacons. The FX3VHF beacon at 50.100 MHz was operated by F8SH on the west coast of France. The VELSIX beacon on 50.088 MHz was built by VE1ASJ and was located at his QTH in New Brunswick. The collection and coordination of reports in Europe were handled by F8SH. W1HDQ was in charge of distributing and gathering results. These two beacons proved to be invaluable as Cycle 21 climbed to its peak.

1978: F2 PROPAGATION RETURNS

During 1977, sporadic-E was responsible for many intense openings allowing many to complete their WAS Awards. For example, June 1977 was a fantastic month. On the 3rd, KH6BQI, KH6IJ, KH6GRU and WA6MHZ/KH6 worked stations across the US and north to W3. On the 4th, WB6NMT and other W6's put many JA's in their logs. On the 9th, WA1OUB and VE1ASJ heard the KH6BQI beacon. These are just a few examples of the many fine openings which took place. However, the fireworks really got under way during 1978. On March 3rd, KH6IAA worked LU's, CE's, JA's, VK's and ZL's via F2. The first F2 contacts of Cycle 21 affecting the continental US took place on March 19th when West Coast stations began working Argentina and Chile. April saw much of the same with ZS3AK and ZS6PW copying the FX3VHF beacon and G4BPY hearing the ZS6PW beacon on 50.029 MHz. By October 1978, F2 returned again with openings between Gibraltar and Brazil. In November, W6's and VE7's worked into Guam (KG6) for the first time.

1979: THE REAL BEGINNING OF CYCLE 21 F2 DX

Although 1978 was a DX'er delight, 1979 proved to be the real beginning of Cycle 21's F2 DX openings. February saw numerous trans-Atlantic openings with a lot of cross-banding activity taking place. SM7PU, G3FXB, G3COJ and DJ2RE provided many with a new cross-band country. Jimmy ZB2BL, custodian of the ZB2VHF beacon, worked many East Coast stations direct on 6. During March, W6's were treated to DX such as W1QXX/KP4, KP4EOR, PJ2DW, NP2AE, VP9WB, HI8WPC, KP4AAN, LU3EX and LU3DCA. WB2RLK/VE1 (now VE1YX) worked into Argentina along with other VE's and W1's. On the evening of April 7th, WB4GHA, W4YYS and WD4FAB in Florida worked 3D2CM in the Fiji Islands and heard the YJ8PV beacon in Vanatu. That same evening, WB4GHA and W4YYS worked VK4RO above 52 MHz.

By July 1979 the F2 propagation had subsided and the sporadic-E season was in full swing. One July evening saw an intense multi-hop opening from Alaska to the East Coast at 1:30 AM local time in W3 land. K3MWV among others took advantage of this late night/early morning opening to complete their 6M WAS. F2 picked up again on the 3rd of October when VE1ASJ heard the 5B4CY beacon in Cyprus on 50.498 MHz. On October 7th, PY2XB worked 50 W4's and W5's including W2IDZ. On the 13th, KH6IAA landed FY7AS, KP4Q, HCLJX and HCLBI. Five days later, VE1ASJ and VELAVX, along with other Northeast stations worked into Japan. EI2W began operating once again on 6 meters on October 20th with a Yaesu FT620B which was lent to him by South Midlands Communications LTD of Southampton. Utilizing a 3 element yagi, VELAVX was his first QSO. Later, EI2W worked W6's and W7's in Arizona. By the end of December, EI2W had a total of 1,552 QSO's with 600 stations in all US call areas, VE1-VE4, VO, KP4, KV2 and XE1FE. WA6GYD purchased EI2W a new FT620B when the other had to be returned. He also shipped him a 120 watt amplifier which was donated by WB6NMT of Lunar Electronics.

On November 2nd, N6CT worked 83 JA's during a two hour band opening, plus HL9TG in Korea. Three days later another JA opening took place which allowed WB4UIP to work 68, W0VB to work 40, and East Coast stations N3AHI, K1IKN, W2UTH, VE1ASJ and others to snag a few. November 6th saw a massive KL7 opening where WL7ACY contacted 270 stations in 45 states. Two days later, KH6IAA worked stations stateside with his ICOM IC502 portable with its indoor whip antenna. The latter part of the month was just as fruitful with KX6PF, ZL1AVZ, ZL1AUM, KG6DX, KG6JIQ and other Pacific stations working into the East Coast.

1980: THE SUPER CONDITIONS CONTINUE

The year 1980 started out with a bang. On the 8th of January, East Coasters were treated to rare DX in the form of TF3SG in Iceland. Despite solar flux readings of 220 and the A Index in single digits, the number of F2 openings were down somewhat as compared to past months. On January 31st, PY2XB worked JR6RRD and a few days later JA3EGE worked 4S7EA in Ceylon (now Sri Lanka). On March 4th, a number of JA's heard the ZB2VHF beacon including JA1RJU who copied it at 599. On March 16th, between 0000-0045 UTC, the FY7THF beacon in French Guiana was heard up to S-9+ 20 dB by H44PT in the Solomon Islands. H44PT then worked FY7AS. That same evening, KH6IAA worked into South America with contacts into PY, LU, CX, HC, TI and HK. In April, ZB2BL worked PY2XB, a number of LU's and ZD8TC. On April 3rd between 1430-1520 UTC, JA1VOK and other JA's worked KP4CK and KP4CL in Puerto Rico on long path via the South Pole. By April, the ZL's were authorized to work below 52 MHz before TV hours. With these new operating parameters, there was more of an opportunity to work them from the East Coast. Between the 6th and the 10th, ZL's were into Florida every afternoon.

By August, the GB3SIX beacon was operational on 50.020 MHz from the QTH of GW3NNE. Operation was when Band I TV was off the air between 0000-0730 UTC from April through September and one hour later the remainder of the year. The beacon ran 25 watts into a 4 element beam pointed west. On the morning of September 17th, W2BN, K2YOF, and W2MZV with the help of others put the United Nations Headquarters Station (4U1UN) on 6 meters for the first time. Using an FT650 donated by W2BN and a halo 650 feet above street-level, they managed 26 contacts, the furthest south being W4CKD in Virginia and the furthest north being WA1RFA in Massachusetts. On the morning of October 12th at 0100 UTC while working PY's, Ted ZD8TC heard weak stations calling on SSB. They turned out to be JA's whereas he put 27 of them in the logbook. A few days later at 1630 UTC, W2IDZ completed a marginal CW QSO with Ted.

NOVEMBER 1980: A FANTASTIC MONTH

Things began quickly during November. On the 2nd, VE1BNN worked PA0RYS who had special verbal permission from authorities to operate on 6 meters. On the 8th, ZD8TC was worked by W7FN, W7WKR and K7KV during a SMIRK Contest. The 9th was a big day with WA7GCS logging DULGF in the Philippines and W7ID in Idaho working 90 JA's. W7ID and JASDXB made history that day by completing the first known 6 meter exchange of SSTV pictures between the US and Japan during a 20 minute QSO. On the 11th, ZS6LN worked 60 US stations and ZS3E worked 64.

4ULUN was active working many W6's and W7's and the JA's were worked as far east as Ohio. The 14th saw KG6DX on the East Coast from Nova Scotia to Florida along with KL7's. On the 15th, a geomagnetic storm took place knocking down the solar flux from 270 to 210. However, many good contacts were made from the East Coast such as DL3ZM/YV5, VP2VGR, GM3MHW and EI6AS. On this same day, W3XO in Maryland heard the T3LAA beacon in Kiribati while the West Coast was working into South Africa. In addition, the KH6's were being worked as far east as Georgia. The I5TDJ beacon in Italy was heard on the East Coast on November 25th. This beacon on 50.319 MHz was in again on the 26th. N3AHI and W3XO put phone calls into Italy at 1600 UTC in an effort to get Piero I5TDJ on the air. It was reported in QST Magazine that Piero rushed home from work but the band had lengthened out. However, I5TDJ worked W4's and W5's, including WA5IYX where he was 579. Just to exemplify how fantastic the month of November was, K8WKZ in Michigan worked all continents in 6 days between the 10th and the 16th by nabbing ZS6LN, JA7QVI, VY1CM, DL3ZM/YV5 and EI9D.

VHF HISTORY AGAIN - THE FIRST 6M-TO-4M CROSS-BAND QSO

The 70 MHz band was first opened for IGY studies (July 1, 1957 - December 31, 1958) and was only to be available for amateur use during this period. Back in 1957, VHF'ers were urged to put 4 meter receivers in their shacks to work 6M-to-4M cross-band with European amateurs. On November 17th, 1980 at 1627 UTC, VE1ASJ transmitted on 50.1 MHz and worked G4BPY cross-band who was on 70.1 MHz. The CW signals from England peaked 439 while VE1ASJ was running 5/9. This was the first successful trans-Atlantic 6M-to-4M QSO. A few days earlier, VE1ASJ heard the 4 meter signal of ZB2BL in Gibraltar but a QSO was never made.

HONG KONG HEARD IN EUROPE

On December 13th and 14th at around 0900 UTC, VS6BE (Hong Kong) was heard in Western Europe. On the 14th, VS6FX was heard. Cross-band 6M-to-10M QSO's were made with G4BPY and GM3MHW. On the 14th, VS6BE's signal was 5/9 +40 dB at G4BPY's QTH.

1981: MORE EXCELLENT DX

The 1981 F2 season picked up where 1980 left off. EL2AV in Liberia (K2UOP), as well as EL2FY, were active on 6 meters using several spot frequencies on SSB below 50.1 MHz. On February 28th, EL2AV worked VP2VGR, W1QXX/KP4, DL3ZM/YV5, 8P6KX and 9Y4JA. At 1720 UTC on this date, EL2AV worked K0AYK in Colorado and K7ICW in Nevada, among others. On March 11th, VE1ASJ logged 25 JA's. Peter YJ8PV in Vanuatu began working many W6's and W7's during the month of April, which included his first US contact with W6XJ on the 12th. During this period of time, PA0 stations were active using a maximum of 25 watts ERP on spot frequencies of 53.875, 53.92 and 53.975 MHz. On October 5th, Kazu JA1RJU worked ZB2BL, ZB2GW, EL2AV and EL2FY. On this day, EL2AV QSO'ed 57 JA's. October 23rd saw two tremendous openings - one to South Africa with ZS3E and ZS6LN working hundreds of US stations and a Hawaiian opening which stretched to the East Coast. The next day, WA9AHZ worked HC1BI on SSTV. October 31st was a banner day for the East Coast operators. On this day, 5B4AZ worked on 50.112 MHz CW and a 3 hour opening into KL7 and VY1 saw signals at S9+. On the first day of the SMIRK Contest on November 7th, T32AB worked many on the East Coast. The East Coast was blessed again on the 12th with the appearance of C5AEH in The Gambia. The big news of November took place on the 17th when VE1ASJ and VE1YX contacted VU2AID in India at 1450 UTC. Dasan ran a Yaesu FT620B to a 5 element beam. During his first few days on the air, VU2AID QSO'ed over 300 JA's. On the 16th, AH8A in American Samoa worked into the East Coast. ZD8TC's signal was into the US on the 29th and a few days before, EL2FY caught a very good opening working stations from W1 to W9. The best opening of December took place on the 13th when TF3T (ex: TF3SG) worked US amateurs coast-to-coast.

CONDITIONS BEGIN TO SUBSIDE

Although 1982 saw new DX stations popping up on the band, conditions were noticeably in a state of deterioration. New voices on the band included J3AE (Grenada), ZD7BW (St. Helena), KA3BUJ/8R1 (Guyana), and ZL4OY and ZL4PO (Chatham). One of the DX highlights of 1982 occurred on April 11th when, after a magnetic disturbance on the 10th, W5UWB worked FO8DR, AH8A, H44PT, ZLLAKW, OA4AWD, A35JT and FK8CR. On December 28th, the GB3SIX beacon commenced 24 hour a day operation.

This compilation, "A BRIEF HISTORY OF 6 METERS - THE MAGIC BAND" was taken from the INTERNATIONAL 6 METER DIGEST which was published by me during the years 1987 and 1988. After several requests by readers of the 6 METER REPORT who were subscribers of the old DIGEST, this material was re-edited and re-printed for the benefit of those experiencing 50 MHz operation for the first time. Although very brief, this compilation will paint a very good picture of the activities which took place during Cycles 17 through 21. A special thanks for making this possible goes to the late Harry Wilson EI2W, Glen Harman W4IUJ, Hilton O'Heffernan G5BY and Ken Evans W9MBL.

Harry A. Schools KA3B
THE KA3B 6 METER REPORT

